

WHAT IS CLAIMED IS:

1. An ink jet printing apparatus comprising:

an ink jet head including an ink ejecting portion and an ejection-energy generating portion operable to eject droplets of an ink from said ink ejecting portion;

a purging device operable to discharge the ink from said ink ejecting portion, without an operation of said ejection-energy generating portion, for thereby performing a purging operation to improve an ink ejecting state of said ink jet head; and

a controller operable to control said purging device for performing said purging operation, and to control said ejection-energy generating portion for performing a flushing operation to discharge the ink from said ink ejecting portion to improve the ink ejecting state of said ink jet head,

and wherein said controller includes a flushing control portion operable to control said ejection-energy generating portion such that ink ejecting actions in said flushing operation are performed in a plurality of intermittent cycles, with a non-ejection pause being inserted between two successive ones of said intermittent cycles, said non-ejection pause having a time duration longer than a period of each of the ink ejecting actions.

2. The ink jet printing apparatus according to claim 1, wherein said time duration of said non-ejection pause is long enough to permit air bubbles in the ink in said ink jet head to be substantially dissolved in the ink.

3. The ink jet printing apparatus according to claim 2, wherein said flushing control portion controls said ejection-energy generating portion such that the ink ejecting actions in each of said plurality of intermittent cycles are effected at a frequency of 4-10 kHz.
4. The ink jet printing apparatus according to claim 3, wherein said time duration of said non-ejection pause is about one second.
5. The ink jet printing apparatus according to claim 2, wherein said time duration of said non-ejection pause is about one second.
6. The ink jet printing apparatus according to claim 1, wherein said flushing control portion activates said ejection-energy generating portion to perform said flushing operation after termination of said purging operation by said purging device.
7. The ink jet printing apparatus according to claim 1, wherein each of said plurality of intermittent cycles includes the ink ejecting actions performed for a length of time during which air bubbles in the ink in said ink jet head do not grow to sizes so large as to disturb a normal ink ejecting operation of said ink jet head.
8. The ink jet printing apparatus according to claim 1, wherein said flushing control portion includes a timer operable to measure said time duration of said non-ejection pause.

9. The ink jet printing apparatus according to claim 1, wherein said flushing control portion is operable to control said ejection-energy generating portion such that each of said plurality of intermittent cycles includes a predetermined number of the ink ejecting actions.

10. The ink jet printing apparatus according to claim 1, wherein said flushing control portion is operable to control said ejection-energy generating portion such that the ink ejecting actions in each of said plurality of intermittent cycles are performed for a predetermined time duration.

11. The ink jet printing apparatus according to claim 1, further comprising an ink cartridge for supplying said ink jet head with the ink, and wherein said controller includes a time measuring portion operable to measure a time which has passed after installation of said ink cartridge on said ink jet head, said flushing control portion is operable after the time measured by said time measuring portion has reached a predetermined threshold.

12. An ink jet printing apparatus comprising:

a head unit having a plurality of ink jet heads each including an ink ejecting portion and an ejection-energy generating portion operable to eject droplets of an ink from said ink ejecting portion;

a purging device operable to discharge the ink from said

ink ejecting portions of two adjacent ones of said plurality ink jet heads, without operations of said ejection-energy generating portions of said two adjacent ink jet heads, for thereby performing a purging operation to improve ink ejecting states of said two adjacent ink jet heads; and

a controller operable to control said purging device for performing said purging operation, and to control said ejection-energy generating portion for performing a flushing operation to discharge the ink from said ink ejecting portion of each of said two adjacent ink jet heads to improve the ink ejecting states of said two adjacent ink jet heads,

and wherein said controller includes a flushing control portion operable to control said ejection-energy generating portion of said each of the two adjacent ink jet heads such that ink ejecting actions in said flushing operation are performed in a plurality of intermittent cycles, with a non-ejection pause being inserted between two successive ones of said intermittent cycles, said non-ejection pause having a time duration longer than a period of each of the ink ejecting actions.

13. The ink jet printing apparatus according to claim 12, wherein said purging device includes a suction cap arranged for a pressure-tight contact with the ink ejecting portions of said two adjacent ink jet heads.